

## **Abstract**

The utilisation of the wind energy at a location depends primarily upon (i) the strength and availability of the wind spectrum and, (ii) the selection of machine. The selection of machine for a site should be optimum so that maximum amount of energy can be effectively harnessed from the wind spectrum. Wind speeds in the North-Eastern (NE) region of India are relatively low in comparison to the coastal regions of India. The mean wind speeds estimated at a few locations of the NE region range from 1.8 m/s to 4.9 m/s. The low wind speed creates hindrance to (i) providing high starting torque to larger machines and (ii) operating the machine with relatively high rated-speed. Thus the NE region could be favourable to smaller machines having low cut-in and low rated wind speeds. Also, the winds in the NE region are highly fluctuating in directions (turbulent) and are usually localised in nature. The localised nature inhibits setting up of large wind farms. However, considering the prevailing power crisis scenario and the non-availability of grid-connected power in most of the remote localities of the NE region, the feasibility of harnessing power from the available low-potential wind resource could be assessed.

The present work aims to analyse the feasibility of installation of wind machines in the NE region of India by estimating the capacity factors of selected machines and costs of energy generation at selected sites of the region. The sites are located in the states of Assam, Arunachal Pradesh, Manipur, Mizoram and Tripura. The study also tries to analyse the various methods used to evaluate the Weibull shape and scale parameters.